

**VHF Absorption, Cosmic Ray and Geomagnetic Field Correlation,  
and Satellite Observations**

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I. During this report period the single frequency riometer obtained from the Aerospace Research Company has proven very reliable in its operation. After repeatedly comparing records obtained by this instrument with records obtained by other experimenters at other locations, there appeared to be some discrepancy in the signal strengths being generated. One possible explanation of the phenomenon lay in the variances in antenna configuration from experimenter to experimenter. It was thus decided to adopt the antenna scheme of the Air Force Cambridge Laboratories Riometer Program so that our data would be as similar as possible to that of AFCRL in all respects. During the latter part of this report period, these modifications were completed. It is apparent from the study of the records that the antenna configuration before adoption of the AFCRL configuration gave almost identically the same diurnal variation as was obtained previously. Hence, none of the earlier records need be voided.

An interesting event occurred on the 18th of April. This has been the subject of intense study by the riometer group at AFCRL and we are in the process of drawing our own conclusions as to the cause of this sudden night time increase in absorption. Unfortunately the magnetometer at the University of New Hampshire was inoperative the first three weeks in April and hence no data is,

available from this source. We are presently gathering cosmic ray data from Chalk River, Canada, Mt. Washington, and Durham, New Hampshire in an effort to ascertain the particle spectrum of the mechanism producing this intense absorption. This study should be completed in the near future.

II. The satellite tracking equipment eventually dried out from the inundation given it during the building renovations, and with the addition of the new frequency divider and frequency multipliers, the system was put into operation. Once in operation, it was also possible to obtain transmissions from the BE-C satellite as well as BE-B and recordings on these satellites are now being made on a routine basis.

A new method of analysis for this instrumentation system is currently under investigation and it is hoped that in the near future data obtained by the use of this method may be presented as a paper.